

ABSTRACT OF THE DISCLOSURE

Conventional EAS systems, such as ULTRA*MAX, use noncoherent detection and a highly nonlinear post detection combining algorithm. It is well known that using the phase information that is present in the received signal has advantages in detection performance.

- 5 This is difficult to do in conventional ULTRA*MAX receiver because of the combination of a narrow signal bandwidth and short receive window duration. A method to incorporate signal phase into the detector by differential coherent combining is provided, which significantly improves processing gain that was not previously obtainable.

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